

=> s rhombohed M.sub.2xo.sub.4

179 RHOMBOHEDRAL
331713 M
55689 SUB
7 2XO
55689 SUB
2320147 4
L2 0 RHOMBOHEDRAL M.SUB.2XO.SUB.4
(RHOMBOHEDRAL(W)M(W) SUB(W) 2XO(W) SUB(W) 4)

=> file ca

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	11.10	11.25

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FILE COVERS 1967 - 27 Jan 1998 (980127/ED) VOL 128 ISS 5

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 11

6860 RHOMBOHEDRAL
627 NASICON
L3 5 RHOMBOHEDRAL NASICON
(RHOMBOHEDRAL(W)NASICON)

=> d 13 1-5

L3 ANSWER 1 OF 5 CA COPYRIGHT 1998 ACS
AN 128:5716 CA
TI Cathode materials for secondary alkali metal-ion and lithium-ion batteries
IN Goodenough, John B.; Padhi, Akshaya; Nanjundaswamy, K. S.; Masquelier, Christian
PA Board of Regents, the University of Texas System, USA
SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2
PI WO 9740541 A1 971030
DS W: CA, JP
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
AI WO 97-US6671 970423
PRAI US 96-16060 960423
US 96-32346 961204
DT Patent
LA English

L3 ANSWER 2 OF 5 CA COPYRIGHT 1998 ACS
AN 124:239799 CA
TI Preparation of NASI glasses by sol-gel process
AU Kim, Hee-Ju; Kang, Eun-Tae; Kim, Jong-Ock

CS Dep. Inorg. Mater. Eng., Gyeongsang Natl. Univ., S. Korea
SO Yoop Hakhooni (1995), 32(12), 1357-68
CODEN: YPHJAP; ISSN: 0372-7807
DT Journal
LA Korean

L3 ANSWER 3 OF 5 CA COPYRIGHT 1998 ACS
AN 115:238022 CA
TI Structure and lithium(1+) dynamics lithium zirconium phosphate
[LiZr₂(PO₄)₃] ceramics
AU Petit, Dominique; Chaput, Frederic; Boilot, Jean Pierre
CS Lab. Phys. Martiere Condens., Ec. Polytech., Palaiseau, 91128, Fr.
SO Mater. Sci. Monogr. (1991), 66C(Ceram. Today--Tomorrow's Ceram., Pt.
C), 2275-83
CODEN: MSMODP; ISSN: 0166-6010
DT Journal
LA English

L3 ANSWER 4 OF 5 CA COPYRIGHT 1998 ACS
AN 110:125971 CA
TI Sodium and oxygen disorder in a scandium-substituted NASICON: a
time of flight neutron powder diffraction study of
Na_{2.5}Zr_{1.8}Sc_{0.2}Si_{1.3}P_{1.7}O₁₂
AU Squattrito, Philip J.; Rudolf, Philip R.; Hinson, Paul G.;
Clearfield, Abraham; Volin, Kenneth; Jorgensen, James D.
CS Dep. Chem., Texas A and M Univ., College Station, TX, 77843, USA
SO Solid State Ionics (1988), 31(1), 31-40
CODEN: SSIOD3; ISSN: 0167-2738
DT Journal
LA English

L3 ANSWER 5 OF 5 CA COPYRIGHT 1998 ACS
AN 103:90522 CA
TI **Rhombohedral Nasicon** compound and battery
IN Yoldas, Bulent E.; Lloyd, Isabel K.
PA Westinghouse Electric Corp., USA
SO U.S., 6 pp.
CODEN: USXXAM
PI US 4526844 A 850702
AI US 83-485087 830414
DT Patent
LA English

=> d 13 1-5 ab

L3 ANSWER 1 OF 5 CA COPYRIGHT 1998 ACS
AB The cathode materials are LiMPO₄, where M is .gtoreq.1 1st-row
transition-metal cation; Mn, Fe, Co, and/or Ni; or Fe_{1-x}Mnx or
Fe_{1-x}Tix, where 0 < x < 1. The cathode materials comprise a
rhomboidal Nasicon material M₁xM₂(PO₄)₃, where
M₁ is Li or Na and x .ltoreq.5.

L3 ANSWER 2 OF 5 CA COPYRIGHT 1998 ACS
AB Nasicon gels (nasigels) of compn. Na_{0.75}Zr₂PSi₂O₁₂ and Na₃Zr₂PSi₂O₁₂
have been synthesized by the sol-gel technique using metal alkoxide
precursors. Crack-free monolithic dry Na_{0.75}Zr₂PSi₂O₁₂ gels have
been prepd. by the controlling the shrinkage rate, but gels of
Na₃Zr₂PSi₂O₁₂ were impossible to prep. without cracking. The gels
treated at up to 800.degree.C led to the formation of glass but the
glasses were converted to the cryst. phases at above this temp.
Cryst. phases pptd. from the Na_{0.75}Zr₂PSi₂O₁₂ glass were a
NASICON-like phase, Na₂Si₂O₅, and free ZrO₂. The only phase that
pptd. from the Na₃Zr₂PSi₂O₁₂ gel was **rhomboidal**
NASICON. For Na_{0.75}Zr₂PSi₂O₁₂ gels, a framework of PO₄

tetrahedra and $\text{SiO}_4(\text{PO}_4)$ tetrahedra formed at low temp. but changed to that of SiO_4 and $\text{SiO}_4(\text{PO}_4)$ tetrahedra at high temp. In the case of $\text{Na}_3\text{Zr}_2\text{P}_2\text{Si}_2\text{O}_{12}$ gel, a framework of isolated PO_4 and SiO_4 tetrahedra formed at low temp. but changed to $\text{SiO}_4(\text{PO}_4)$ tetrahedra framework which usually formed in the NASICON crystal after crystn. at high temp. The gels treated at up to 800.degree.C contained residual water. The ionic conduction was attributed to the motion of proton and Na^+ ions at low (150-200.degree.C) and higher temps., resp. As the temp. of heat treatment increased, ionic cond. gradually increased with increasing extent of pptn. of cryst. phases.

L3 ANSWER 3 OF 5 CA COPYRIGHT 1998 ACS

AB Structure, phase transition, and Li motion in pure and Ta-doped $\text{LiZr}_2(\text{PO}_4)_3$ ceramics were studied by x-ray diffraction, DSC, NMR (^3P and ^7Li) and a.c. cond. For pure **rhombohedral NASICON**-type ceramics, the bulk cond. was 0.014 S/cm at 300.degree., while the total cond. (bulk plus grain boundaries) was 5×10^{-4} S/cm for pure .beta.- $\text{Fe}_2(\text{SO}_4)_3$ -type ceramics. Ta-doped materials with the **rhombohedral NASICON** structure showed lower conductivities comparable to undoped ceramics.

L3 ANSWER 4 OF 5 CA COPYRIGHT 1998 ACS

AB A Sc-substituted NASICON of compn. $\text{Na}_{2.5}\text{Zr}_{1.8}\text{Sc}_{0.2}\text{Si}_{1.3}\text{P}_{1.7}\text{O}_{12}$ has been prepd. and characterized by neutron powder diffraction and cond. measurements. Time-of-flight neutron powder diffraction data were collected at 26, 100, 200, 300, and 400.degree.. Satisfactory Rietveld refinements were obtained for all temps. using the rhombohedral space group $R\bar{3}m$. The novel aspect of this structure is the simultaneous presence of partially occupied interstitial sodium and oxygen sites that are disordered with the regular Na(2) and O(1) sites in the known **rhombohedral NASICON** structure. The results are compared with recent findings of defect structures in other NASICON materials. Cond. measurements in the range 30-350.degree. reveal an activation energy of 0.30 eV for Na^+ conduction but cond. values changed with temp. of sample prepn.

L3 ANSWER 5 OF 5 CA COPYRIGHT 1998 ACS

AB The title compd. is $\text{M}_1x+0.02y+0.04zM_{12}-0.02(y+z)\text{M}_{20}.02y\text{M}_{30}.02zM_4x\text{M}_{53}-x\text{O}_{12}$; where M is selected from Li, Na, Ca, and Ag; M_1 is selected from Zr, Ti, or Hf; M_2 is selected from Y, Sc, or La; M_3 is selected from Mg, Ca, Sr, or Ba; M_4 is selected from Si and Ge; M_5 is selected from P and As; $x = 1.6-2.2$; y .ltorsim.15; and z .ltorsim.15. The preferred compd. is $\text{Na}_{1+x}\text{Zr}_2\text{Si}_x\text{P}_{3-x}\text{O}_{12}$. A Na-S battery using the Nasicon compd. is also disclosed. The Nasicon compds. are prepd. by chem. polymn. from alkoxide solns. Thus, $\text{Na}_3\text{Zr}_2\text{Si}_2\text{P}_2\text{O}_{12}$ was prepd. from NaOEt [141-52-6], $\text{Zr}(\text{OBu})_4$ [1071-76-7], $\text{Si}(\text{OEt})_4$ [78-10-4], and $\text{P}(\text{OMe})_3$ [121-45-9]. The resp. cond. of Nasicon according to the invention at 300 and .apprx.25.degree. was 4.02 .times. 10^{-3} and 1.22 .times. 10^{-5} .OMEGA. $^{-1}\text{cm}^{-1}$; these values were superior to those of the ref. samples.

=> s l3 and cathode#

96038 CATHODE#

L4 1 L3 AND CATHODE#

=> d l4

L4 ANSWER 1 OF 1 CA COPYRIGHT 1998 ACS

AN 128:5716 CA

L5 ANSWER 1 OF 1 USPATFULL
 AN 85:38809 USPATFULL
 TI **Rhombohedral nasicon** compound and battery
 IN Yoldas, Bulent E., Murrysville, PA, United States
 Lloyd, Isabel K., Murrysville, PA, United States
 PA Westinghouse Electric Corp., Pittsburgh, PA, United States (U.S. corporation)
 PI US 4526844 850702
 AI US 83-485087 830414 (6)
 DT Utility
 LN.CNT 378
 INCL INCLM: 429/030.000
 INCLS: 429/033.000; 429/193.000; 501/103.000; 501/104.000;
 501/106.000
 NCL NCLM: 429/030.000
 NCLS: 429/033.000; 429/193.000; 501/103.000; 501/104.000;
 501/106.000
 IC [3]
 ICM: H01M008-10
 ICS: H01M006-18
 EXF 429/193; 429/30; 429/31; 429/33; 501/103; 501/104; 501/106
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 15 ab

L5 ANSWER 1 OF 1 USPATFULL
 AB Disclosed is a nasicon compound and a method of making it. The nasicon compound is rhombohedral at room temperature and has the general formula

$$M_{1+x+0.02y+0.04z} M'_{2-0.02(y+z)} M''_{0.02y} M'''_{0.02z} M''''_{x} M'''''_{3-x} O_{12}$$

where M is selected from lithium, sodium, calcium, and silver, M' is selected from zirconium, titanium or hafnium, M'' is selected from yttrium, scandium or lanthanum, M''' is selected from magnesium, calcium, strontium or barium, M'''' is selected from silicon and germanium, M''''' is selected from phosphorous and arsenic, x is about 1.6 to about 2.2, y is about 0 to about 15, and z is about 0 to about 15. The preferred compound is

$$Na_{1+x} Zr_2 Si_x P_{3-x} O_{12}$$

A sodium sulfur battery using the nasicon compound is also disclosed.

TI Cathode materials for secondary alkali metal ion and
 lithium-ion batteries
 IN Goodenough, John B.; Padhi, Akshaya; Nanjundaswamy, K. S.;
 Masquelier, Christian
 PA Board of Regents, the University of Texas System, USA
 SO PCT Int. Appl., 47 pp.
 CODEN: PIXXD2
 PI WO 9740541 A1 971030
 DS W: CA, JP
 RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,
 SE
 AI WO 97-US6671 970423
 PRAI US 96-16060 960423
 US 96-32346 961204
 DT Patent
 LA English

=> file uspat

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	13.96	25.21
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-2.30	-2.30

FILE 'USPATFULL' ENTERED AT 13:00:24 ON 31 JAN 1998
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FILE COVERS 1971 TO PATENT PUBLICATION DATE: 27 Jan 1998 (19980127/PD)
 FILE LAST UPDATED: 28 Jan 1998 (19980128/ED)
 HIGHEST PATENT NUMBER: US5713075
 CA INDEXING IS CURRENT THROUGH 28 Jan 1998 (19980128/UPCA)
 ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 27 Jan 1998 (19980127/PD)
 REVISED CLASS FIELDS (/NCL) LAST RELOADED: JAN 1998
 USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: DEC 1997

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 >>> Image data for the /FA field are available the following week. <<<

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 >>> USPTO Manual of Classifications in the /NCL, /INCL, and /RPCL <<<
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 >>> USPTO/MOC subject headings and subheadings. Thesauri are also <<<
 >>> available for the WIPO International Patent Classification <<<
 >>> (IPC) Manuals, editions 1-6, in the /IC1, /IC2, /IC3, /IC4, <<<
 >>> /IC5, and /IC (/IC6) fields, respectively. The thesauri in <<<
 >>> the /IC5 and /IC fields include the corresponding catchword <<<
 >>> terms from the IPC subject headings and subheadings. <<<

This file contains CAS Registry Numbers for easy and accurate
 substance identification.

=> s 11

662 RHOMBOHEDRAL
 120 NASICON
 L5 1 RHOMBOHEDRAL NASICON
 (RHOMBOHEDRAL(W)NASICON)

=> d 15

=> s Mn or Fe or Co or Ni

248414 MN
388004 FE
194422 CO
226832 NI
L10 633856 MN OR FE OR CO OR NI

=> s 19 and 110

L11 1 L9 AND L10

=> file ca

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	101.48	101.63

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FILE COVERS 1967 - 27 Jan 1998 (980127/ED) VOL 128 ISS 5

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 111

L12 2 L11

=> d 112 1-2

L12 ANSWER 1 OF 2 CA COPYRIGHT 1998 ACS
AN 97:24305 CA
TI Carboxylate and sulfonate polyaddition polymers
AU Katayama, S.; Koyama, N.; Iwashita, T.
CS Polym. Res. Lab., NHK Spring Co. Ltd., Yokohama, Japan
SO Int. Prog. Urethanes (1981), 3, 15-32
CODEN: IPURD9; ISSN: 0147-0671
DT Journal
LA English

L12 ANSWER 2 OF 2 CA COPYRIGHT 1998 ACS
AN 94:122000 CA
TI Carboxylate and sulfonate polyaddition polymers
AU Katayama, Shitomi; Koyama, Nobuaki; Iwashita, Takeyasu
CS Dep. Res. Dev., NHK Spring Co., Ltd., Japan
SO Plast. Ind. News (1980), 26(12), 182-9
CODEN: PINWAE; ISSN: 0032-1206
DT Journal

L12 ANSWER 1 OF 2 CA COPYRIGHT 1998 ACS
 ACCESSION NUMBER: 97:24305 CA
 TITLE: Carboxylate and sulfonate polyaddition polymers
 AUTHOR(S): Katayama, S.; Koyama, N.; Iwashita, T.
 CORPORATE SOURCE: Polym. Res. Lab., NHK Spring Co. Ltd., Yokohama,
 Japan
 SOURCE: Int. Prog. Urethanes (1981), 3, 15-32
 CODEN: IPURD9; ISSN: 0147-0671
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 CLASSIFICATION: 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36

ABSTRACT:

The title polyaddn. polyelectrolytes were prepd. by treating .beta.-propiolactone or propanesulfone with a diamine, hydroxyalkyl- or hydroxyalkarylamine, or bis(hydroxyalkyl)amine to give derivs. of .beta.-alanine or .gamma.-aminopropylsulfonic acid, which were then polymd. with a diisocyanate to give a polyurea, polyurea-polyurethane, or polyurethane. Polyurea electrolytes could be prepd. by both interfacial and soln. polymn., but polyurea-urethane and polyurethane electrolytes could be prepd. only by soln. polymn. The polyelectrolytes were sepd. into water-sol. and water-insol. fractions, both of which were sol. in aprotic polar solvents. Both the carboxylate and sulfonate polyelectrolytes had antistatic and flocculating properties. The carboxylate polyelectrolytes chelated metal ions in both water and DMSO, but the sulfonate polyelectrolytes exhibited no chelating ability.

SUPPL. TERM: polyurea polyelectrolyte prepn interfacial polymn;
 soln polymn polyurea polyelectrolyte prepn;
 polyurethane polyelectrolyte soln polymn; carboxy
 polyurea polyurethane polyelectrolyte; sulfo polyurea
 polyurethane polyelectrolyte
 INDEX TERM: Flocculation
 (by carboxy or sulfonic group-contg.
 polyelectrolytes based on polyureas or
 polyurethanes)
 INDEX TERM: Polyelectrolytes
 (carboxylic or sulfonic group-contg. polyureas or
 polyurethanes, prepn. and properties of)
 INDEX TERM: Electric resistance
 (of carboxy or sulfonic group-contg. polyurea or
 polyurethane polyelectrolytes)
 INDEX TERM: Chelation
 (of metals, by carboxy group-contg. polyurea or
 polyurethane polyelectrolytes)
 INDEX TERM: Polyureas
 Urethane polymers, uses and miscellaneous
 ROLE: SPN (Synthetic preparation); PREP (Preparation)
 (carboxy group-contg., polyelectrolytes, prepn. and
 properties of)
 INDEX TERM: Polymerization
 (interfacial, of carboxy or sulfonic group-contg.
 diamines, with diisocyanates, for polyelectrolytes)
 INDEX TERM: Urethane polymers, uses and miscellaneous
 ROLE: SPN (Synthetic preparation); PREP (Preparation)
 (polyurea-, carboxy or sulfonic group-contg.,
 polyelectrolytes, prepn. and properties of)
 INDEX TERM: Polyureas
 ROLE: SPN (Synthetic preparation); PREP (Preparation)
 (polyurethane-, carboxy or sulfonic group-contg.,

polyelectrolytes, prepn. and properties of)

INDEX TERM: Polymerization
(soln., of carboxy or sulfonic group-contg. hydroxy
amines or diols, with diisocyanates, for
polyelectrolytes)

INDEX TERM: Polyureas
Urethane polymers, uses and miscellaneous
(sulfonic group-contg., polyelectrolytes, prepn.
and properties of)

INDEX TERM: 68147-06-8P 68147-08-0P 68147-22-8P 68147-26-2P
68147-28-4P 68147-36-4P 68147-38-6P 68182-28-5P
68182-29-6P 68253-12-3P 74182-29-9P 76961-33-6P
76961-34-7P 76962-43-1P 76962-45-3P
76962-49-7P 76962-53-3P 76962-54-4P
76962-55-5P 82041-31-4P 82167-29-1P 82167-31-5P
82167-33-7P
ROLE: SPN (Synthetic preparation); PREP (Preparation)
(polyelectrolytes, prepn. and properties of)

INDEX TERM: 1119-23-9P 4220-47-7P 5458-99-1P 27184-43-6P
34381-72-1P 62155-79-7P 64645-91-6P 68147-35-3P
71526-68-6P 76936-62-4P 76936-64-6P 76961-32-5P
82055-97-8P 82055-98-9P 82055-99-0P
ROLE: RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation)
(prepn. and polymn. of, with diisocyanates)

INDEX TERM: 57-57-8DP, diamine derivs. 1120-71-4DP, diamine
derivs.
ROLE: RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation)
(prepn. and polymn. of, with diisocyanates, for
polyelectrolytes)

INDEX TERM: 124-09-4, reactions
ROLE: RCT (Reactant)
(reaction of, with Me methacrylate)

INDEX TERM: 104-10-9 111-42-2, reactions
ROLE: RCT (Reactant)
(reaction of, with acrylic acid)

INDEX TERM: 79-10-7, reactions
ROLE: RCT (Reactant)
(reaction of, with aminophenylethanol or
diethanolamine)

INDEX TERM: 80-62-6
ROLE: RCT (Reactant)
(reaction of, with hexamethylenediamine)

L12 ANSWER 2 OF 2 CA COPYRIGHT 1998 ACS

ACCESSION NUMBER: 94:122000 CA
TITLE: Carboxylate and sulfonate polyaddition polymers
AUTHOR(S): Katayama, Shitomi; Koyama, Nobuaki; Iwashita,
Takeyasu
CORPORATE SOURCE: Dep. Res. Dev., NHK Spring Co., Ltd., Japan
SOURCE: Plast. Ind. News (1980), 26(12), 182-9
CODEN: PINWAE; ISSN: 0032-1206
DOCUMENT TYPE: Journal
LANGUAGE: English
CLASSIFICATION: 35-3 (Synthetic High Polymers)

ABSTRACT:
Interfacial or soln. polymn. of hexamethylene diisocyanate or
diphenylmethane 4,4'-diisocyanate with .beta.-alanine or
.gamma.-aminopropylsulfonic acid derivs. gives polyurea, polyurea
polyurethanes, or polyurethane electrolytes. The polymer electrolytes
could be sepd. into water-sol. and water-insol. parts, both of which
could be dissolved in aprotic polar solvents. The softening points of
the water-insol. portions are generally higher than those of the
water-sol. portions. Some elec. resistivities, antistatic properties,

and flocculating and chelating properties are given.

SUPPL. TERM: hexamethylene diisocyanate alanine copolymer
electrolyte; aminopropylsulfonic acid hexamethylene
diisocyanate copolymer; diphenylmethane diisocyanate
aminopropylsulfonic acid copolymer; alanine
diphenylmethane diisocyanate copolymer; polyurea
polyurethane electrolyte; polyelectrolyte polyurea
polyurethane

INDEX TERM: Electric resistance
(of polyelectrolytes from diisocyanates and
.beta.-alanine or .gamma.-aminopropylsulfonic acid
derivs.)

INDEX TERM: Chelating agents and Complexing agents
Flocculating agents
(polyelectrolytes, prepn. of)

INDEX TERM: Polyureas
Urethane polymers, preparation
ROLE: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of electrolytic, from diisocyanates and
.beta.-alanine or .gamma.-aminopropylsulfonic acid
derivs.)

INDEX TERM: Polyelectrolytes
(prepn. of, from diisocyanates and .beta.-alanine
or .gamma.-aminopropylsulfonic acid derivs.)

INDEX TERM: Polymerization
(interfacial, of isocyanates with .beta.-alanine or
.gamma.-aminopropylsulfonic acid derivs., for
polyelectrolytes)

INDEX TERM: Urethane polymers, preparation
ROLE: SPN (Synthetic preparation); PREP (Preparation)
(polyurea-, prepn. of electrolytic, from
diisocyanates and .beta.-alanine or
.gamma.-aminopropylsulfonic acid derivs.)

INDEX TERM: Polyureas
ROLE: SPN (Synthetic preparation); PREP (Preparation)
(polyurethane-, prepn. of electrolytic, from
diisocyanates and .beta.-alanine or
.gamma.-aminopropylsulfonic acid derivs.)

INDEX TERM: Polymerization
(soln., of isocyanates with .beta.-alanine or
.gamma.-aminopropylsulfonic acid derivs., for
polyelectrolytes)

INDEX TERM: 4220-47-7P 68147-35-3P 76936-62-4P 76936-65-7P
ROLE: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and copolymn. of)

INDEX TERM: 1119-23-9P 64645-91-6P 71526-68-6P 76936-63-5P
76936-64-6P
ROLE: RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation)
(prepn. and polymn. of)

INDEX TERM: 68147-06-8P 68147-08-0P 68147-22-8P 68147-26-2P
68147-28-4P 68147-36-4P 68147-38-6P 68182-28-5P
68182-29-6P 68253-12-3P 74182-29-9P 76961-31-4P
76961-33-6P 76961-34-7P 76962-43-1P 76962-45-3P
76962-47-5P 76962-49-7P 76962-51-1P
76962-53-3P 76962-54-4P 76962-55-5P 76984-64-0P
ROLE: PRP (Properties); SPN (Synthetic preparation);
PREP (Preparation)
(prepn. and properties of)

INDEX TERM: 124-09-4, reactions
ROLE: RCT (Reactant)
(reaction of, with Me methacrylate or acetonitrile)

INDEX TERM: 104-10-9 111-42-2, reactions
ROLE: RCT (Reactant)

INDEX TERM: (reaction of, with acrylic acid)
 79-10-7, reactions
 ROLE: RCT (Reactant)
 (reaction of, with diethanolamine or
 aminophenylethanol)

INDEX TERM: 80-62-6
 ROLE: RCT (Reactant)
 (reaction of, with hexamethylenediamine)

INDEX TERM: 1120-71-4
 ROLE: RCT (Reactant)
 (reaction of, with hexamethylenediamine and
 acetonitrile)

INDEX TERM: 75-05-8, reactions
 ROLE: RCT (Reactant)
 (reaction of, with hexamethylenediamine and
 propanesultone)

=> file reg

COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	5.76	107.39
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
CA SUBSCRIBER PRICE	-0.92	-0.92

FILE 'REGISTRY' ENTERED AT 12:23:58 ON 31 JAN 1998
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STRUCTURE FILE UPDATES: 23 JAN 98 HIGHEST RN 200334-60-7
 DICTIONARY FILE UPDATES: 29 JAN 98 HIGHEST RN 200334-60-7

TSCA INFORMATION NOW CURRENT THROUGH JUNE 1997

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=>

=>

=> s (0-5)/Li and 3/P and 3/O

65802 (0-5)/LI
 52612 3/P
 2150755 3/O
 L13 36 (0-5)/LI AND 3/P AND 3/O

=> d his

(FILE 'HOME' ENTERED AT 12:17:24 ON 31 JAN 1998)

FILE 'REGISTRY' ENTERED AT 12:17:29 ON 31 JAN 1998

L1	0 S LI AND FE AND 4/PO
L2	0 S LI AND MN AND 4/PO
L3	0 S LI AND CO AND 4/PO
L4	0 S (0-5)/LI AND 2/FE AND 3/PO4
L5	0 S (0-5)/LI AND 2/FE AND 3/PO
L6	0 S (0-5)/LI AND 2/V AND 3/PO
L7	0 S (1-6)/LI AND 2/TI AND 3/PO
L8	0 S LI AND 4/PO

L9 58 LI AND P AND 4/O
L10 633856 MN OR FE OR CO OR NI
L11 1 S L9 AND L10

FILE 'CA' ENTERED AT 12:23:07 ON 31 JAN 1998
L12 2 S L11

FILE 'REGISTRY' ENTERED AT 12:23:58 ON 31 JAN 1998
L13 36 S (0-5)/LI AND 3/P AND 3/O

=> s l13 and l10

L14 3 L13 AND L10

=> d l14

L14 ANSWER 1 OF 3 REGISTRY COPYRIGHT 1998 ACS
RN 180921-41-9 REGISTRY
CN Lithium nickel metaphosphate oxide (LiNi2(PO3)3O) (9CI) (CA INDEX
NAME)
MF Li . Ni . O3 P . O
AF Li Ni2 O10 P3
CI TIS
SR CA
LC STN Files: CA, CAPLUS

Component	Ratio	Component Registry Number
O	1	17778-80-2
O3P	3	15389-19-2
Ni	2	7440-02-0
Li	1	7439-93-2

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> file ca

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FULL ESTIMATED COST	17.56	124.95
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-0.92

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FILE COVERS 1967 - 27 Jan 1998 (980127/ED) VOL 128 ISS 5

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l14\

=> s 114

L16 2 L14

=> d 116 iall 1-2

L16 ANSWER 1 OF 2 CA COPYRIGHT 1998 ACS

ACCESSION NUMBER: 125:208995 CA

TITLE: Lithium dicobalt tripolyphosphate and lithium dinickel tripolyphosphate

AUTHOR(S): Erragh, Fatima; Boukhari, Ali; Holt, Elizabeth M.

CORPORATE SOURCE: Dep. Chimie, Univ. Mohammed V, Rabat, Morocco

SOURCE: Acta Crystallogr., Sect. C: Cryst. Struct.

Commun. (1996), C52(8), 1867-1869

CODEN: ACSCEE; ISSN: 0108-2701

DOCUMENT TYPE: Journal

LANGUAGE: English

CLASSIFICATION: 75-8 (Crystallography and Liquid Crystals)
Section cross-reference(s): 78

ABSTRACT:

Isotypic Li dicobalt triphosphate, $\text{LiCo}_2\text{P}_3\text{O}_{10}$, and Li dinickel triphosphate, $\text{LiNi}_2\text{P}_3\text{O}_{10}$, were synthesized and characterized by single-crystal x-ray diffraction. These are the 1'st observations of nonhydrated mixed-metal tripolyphosphates. The $\text{P}_3\text{O}_{10}^{5-}$ groups are situated on a mirror plane, with successive PO_3 moieties displaying both staggered and eclipsed conformations. Octahedrally coordinated Co^{2+} and Ni^{2+} ions form a staggered chain $[\text{Co.cntdot.cntdot.cntdot.Co } 3.286(1) \text{ and } 3.133(1) \text{ .ANG.}, \text{Ni.cntdot.cntdot.cntdot.Ni } 3.201(1) \text{ and } 3.023(1) \text{ .ANG.}]$, with successive metal ions bridged by two O atoms. Crystallog. data and at. coordinates are given.

SUPPL. TERM: structure lithium cobalt nickel tripolyphosphate
crystalINDEX TERM: Crystal structure
(of cobalt lithium and lithium nickel
tripolyphosphates)INDEX TERM: 180921-40-8, Cobalt lithium metaphosphate
oxide ($\text{Co}_2\text{Li}(\text{PO}_3)_3\text{O}$) 180921-41-9, Lithium
nickel metaphosphate oxide ($\text{LiNi}_2(\text{PO}_3)_3\text{O}$)ROLE: PRP (Properties)
(crystal structure of)

L16 ANSWER 2 OF 2 CA COPYRIGHT 1998 ACS

ACCESSION NUMBER: 111:39544 CA

TITLE: Ring expansion in dimetallacycle chemistry:
preparation of a dimetallacyclopentanol from a
dimetallacyclobutaneAUTHOR(S): Fontaine, Xavier L. R.; Jacobsen, Grant B.;
Shaw, Bernard L.

CORPORATE SOURCE: Sch. Chem., Univ. Leeds, Leeds, LS2 9JT, UK

SOURCE: J. Chem. Soc., Dalton Trans. (1988), (8), 2235-7

CODEN: JCDBTBI; ISSN: 0300-9246

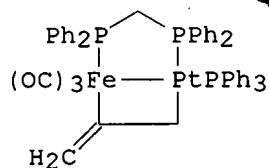
DOCUMENT TYPE: Journal

LANGUAGE: English

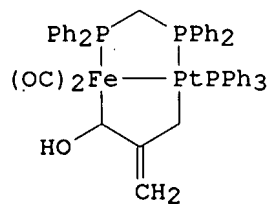
CLASSIFICATION: 29-13 (Organometallic and Organometalloidal
Compounds)

OTHER SOURCE(S): CASREACT 111:39544; CJRSC

GRAPHIC IMAGE:



I



II

ABSTRACT:

Treatment of the dimetallacyclobutane complex I with excess LiBHET₃ followed by MeOH gave 70% dimetallacyclopentanol complex II.

SUPPL. TERM: ferraplatinacyclobutene complex ring expansion reaction; dimetallacyclobutane complex ring expansion reaction; platinaferracyclobutane complex ring expansion reaction; ferraplatinacyclopentanol; platinaferracyclopentanol; dimetallacyclopentanol

INDEX TERM: Ring enlargement
(of ferraplatinacyclobutane complex, ferraplatinacyclopentanol complex by)

INDEX TERM: 121395-55-9P
ROLE: PREP (Preparation)
(formation, NMR, and protonation of)

INDEX TERM: 121395-54-8P
ROLE: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and 2-dimensional NMR of)

INDEX TERM: 113288-10-1
ROLE: RCT (Reactant)
(ring expansion reaction of, with lithium triethylborohydride or sodium borohydride)

>>> CHANGES TO DWPI COVERAGE - SEE NEWS <<<

=> s rhombohedral Nasicon

179 RHOMBOHEDRAL

36 NASICON

L1 1 RHOMBOHEDRAL NASICON
(RHOMBOHEDRAL(W)NASICON)

=> d 11

L1 ANSWER 1 OF 1 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD

AN 97-536126 [49] WPIDS

DNN N97-446285 DNC C97-171492

TI Cathode materials for rechargeable secondary lithium batteries -
comprising transition metal compounds with ordered olivine or
rhombohedral NASICON structure containing
phosphate ions..

DC E31 L03 X16

IN GOODENOUGH, J B; MASQUELIER, C; NANJUNDASWAMY, K S; PADHI, A

PA (TEXA) UNIV TEXAS SYSTEM

CYC 19

PI WO 9740541 A1 971030 (9749)* EN 48 pp H01M004-58

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

W: CA JP

ADT WO 9740541 A1 WO 97-US6671 970423

PRAI US 96-32346 961204; US 96-16060 960423

IC ICM H01M004-58

ICS C01B025-26

=> d 11 ab

L1 ANSWER 1 OF 1 WPIDS COPYRIGHT 1998 DERWENT INFORMATION LTD

AB WO 9740541 A UPAB: 971211

Cathode material for a rechargeable electrochemical cell having the
formula LiMPO_4 where M is at least one first row transition metal
cation.

Also claimed (II) is the material comprising a
rhombohedral NASICON material of the formula
 $\text{YxM}_2(\text{PO}_4)_3$ where M is a first row transition metal cation and 0 at
most 0 at most 5 and Y is Li or Na.

Also claimed (III) is the material comprising a
rhombohedral NASICON material of the formula
 $\text{YxM}_2(\text{PO}_4)_y(\text{XO}_4)_{3-y}$ where M is a first row transition metal cation
and 0 at most x at most 5, 0 at most y at most 3, Y is Li or Na, and
X is Si, As, or S.

Also claimed (IV) is the material as comprising a
rhombohedral NASICON material of the formula
 $\text{A}_3\text{-xV}_2(\text{PO}_4)_3$ where A is Li or Na or their combination and 0 at most
x at most 2.

Also claimed is a secondary battery including a cathode formed
from the materials in (I) - (IV)

USE - Electrodes for secondary lithium batteries.

ADVANTAGE - Materials are environmentally benign.

Dwg.0/15